WASTE MANAGEMENT

WASTE MANAGEMENT OF ILLINOIS, INC.
601 Madison Road
East St. Louis, Illinois 62201
(618) 271-6788
(618) 271-1227 Fax

November 14, 2011

Mr. Ed Bakowski, PE, Manager
Illinois Environmental Protection Agency
Bureau of Air – Permit Section
1021 North Grand Avenue East
Springfield, Illinois 62702

RE: Construction Permit Modification Application - Revise Flare Emissions Rates and Emissions Factors
Construction Permit No. 06100058 (Issued January 10, 2007)
Cottonwood Hills Recycling and Disposal Facility - 163075AAL
Marissa, St Clair County, Illinois

Dear Mr. Bakowski:

The Cottonwood Hills Recycling and Disposal Facility (RDF) operates an existing 3,000 cfm open flare. The flare was authorized for construction via Construction Permit No. 06100058, issued by the IEPA-BOA on January 10, 2007.

Emissions calculations for the flare in the original air construction permit application were based on an assumed methane concentration of 54%. The methane quality has a direct impact on NOx and CO emissions rates, since the manufacturer's emissions factors for the open flare are in terms of lbs/mmbtu. The facility has periodically been measuring actual methane concentrations as high as 58% and is therefore seeking to re-permit the NOx and CO emissions rates in order to account for this higher methane concentration. Currently the flow rates for the flare are low enough so that the hourly and annual emissions of NOx and CO are well below permitted limits. However, the site is proactively revising the emissions rates since the gas flows will continue to increase as the landfill gas collection system is expanded.

Additionally, the site conducts landfill gas quality testing for NMOC, sulfur compounds and other constituents annually pursuant to Construction Permit No. 06100058. The AP-42 concentration for sulfur compounds of 46.9 ppm was used in the emission calculations presented in the original construction permit application. Recent analytical data indicates that sulfur concentrations at the flare are currently at or below this value. However, in order to provide a margin of safety should the concentrations increase in the future, the site has recalculated SO_2 emissions using an engineering estimate of 300 ppm, and is requesting that allowable flare emissions rates be revised accordingly.

Lastly, the site would like to revise the methodology it used in the application for calculating PM emissions, and instead proposes to use AP-42 emissions factors. This will result in an increase in PM emissions.

Greenhouse gas calculations are provided since this application is submitted after the Step 2 date of the Tailoring Rule. Enclosed please find the following information to support this request:

- Attachment 1: CAAPP Form 197 & $500 Application Fee
- Attachment 2: CAAPP Form 199
- Attachment 3: Summary of Request/Proposed Permit Language
- Attachment 4: Discussion of NSR/PSD Applicability
- Attachment 5: Revised CAAPP 260 Form
- Attachment 6: Updated Open Flare Emissions Calculations – Criteria Pollutants
- Attachment 7: GHG Emissions Calculations for Source & Flare

If you have any questions regarding this construction permit modification application, please contact me at (618) 271-6788 Ext 2122 or Laura Niemann at (616) 891-2592.

Sincerely,
Waste Management of Illinois, Inc.

Ernest H. Dennison, P.E.
District Engineer

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FOR APPLICANT'S USE
Revision #: _____
Date: ____ / ____ / ____
Page _____ of _____
Source Designation:

DELEGATION OF AUTHORITY FOR RESPONSIBLE OFFICIAL TO A REPRESENTATIVE

FOR AGENCY USE ONLY
ID NUMBER:
PERMIT #:
DATE:

THIS FORM SHALL BE USED BY A RESPONSIBLE OFFICIAL TO DELEGATE AUTHORITY TO A REPRESENTATIVE OF SUCH PERSON FOR SIGNATURE ON APPLICATIONS OR CERTIFICATION OF REPORTS TO BE SUBMITTED PURSUANT TO THE CLEAN AIR ACT.

THIS FORM SHALL ONLY BE USED FOR A CORPORATION AT WHICH A PRESIDENT, SECRETARY, TREASURER, OR VICE-PRESIDENT OF THE CORPORATION IN CHARGE OF BUSINESS FUNCTION, OR ANY OTHER PERSON WHO PERFORMS SIMILAR POLICY OR DECISION MAKING FUNCTIONS FOR THE CORPORATION TO TRANSFER THE AUTHORITY AS A RESPONSIBLE OFFICIAL TO A REPRESENTATIVE OF SUCH PERSON. THE REPRESENTATIVE OF SUCH PERSON MUST BE RESPONSIBLE FOR THE OVERALL OPERATION OF ONE OR MORE MANUFACTURING, PRODUCTION, OR OPERATING FACILITIES APPLYING FOR OR SUBJECT TO A PERMIT.

NOTE: THIS TRANSFER OF DELEGATION OF AUTHORITY IS APPLICABLE ONLY IF THE FACILITY EMPLOYS MORE THAN 250 PERSONS OR HAS A GROSS ANNUAL SALES OR EXPENDITURES EXCEEDING $25 MILLION (IN SECOND QUARTER 1980 DOLLARS).

SOURCE INFORMATION

1) SOURCE NAME: Cottonwood Hills Recycling and Disposal Facility

2) DATE FORM PREPARED:

3) SOURCE ID NO. (IF KNOWN): 163075AAL

TRANSFER OF AUTHORITY

4) I, THE UNDERSIGNED, BEING A PRESIDENT, SECRETARY, TREASURER, OR VICE-PRESIDENT OF THE CORPORATION IN CHARGE OF BUSINESS FUNCTION, OR OTHER PERSON WHO PERFORMS SIMILAR POLICY OR DECISION MAKING FUNCTIONS FOR THE CORPORATION, HEREBY TRANSFER THE AUTHORITY AS A RESPONSIBLE OFFICIAL TO Ernest H Dennison, THEY BEING A REPRESENTATIVE AND RESPONSIBLE FOR THE OVERALL OPERATION OF ONE OR MORE MANUFACTURING, PRODUCTION, OR OPERATING FACILITIES APPLYING FOR OR SUBJECT TO A PERMIT.

AUTHORIZED SIGNATURE	Vice President TITLE OF SIGNATORY
Dennis M. Wilt TYPED OR PRINTED NAME OF SIGNATORY	01 / 31 / 2011 DATE
Ernest H Dennison DELEGATED REPRESENTATIVE	District Engineer TITLE OF DESIGNATED REPRESENTATIVE

THIS AGENCY IS AUTHORIZED TO REQUIRE THIS INFORMATION UNDER ILLINOIS REVISED STATUTES, 1991, AS AMENDED 1992, CHAPTER 111 1/2, PAR. 1039.5. DISCLOSURE OF THIS INFORMATION IS REQUIRED UNDER THAT SECTION. FAILURE TO DO SO MAY PREVENT THIS FORM FROM BEING PROCESSED AND COULD RESULT IN THE APPLICATION BEING DENIED. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

FOR APPLICANT'S USE

APPLICATION PAGE _____

WM01250

Attachment 1
CAAPP Form 197 & $500 Application Fee

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY	
ID NUMBER:	
PERMIT #:	
COMPLETE ☐ INCOMPLETE ☐	DATE COMPLETE:
CHECK #:	ACCOUNT NAME:

THIS FORM IS TO BE USED BY ALL SOURCES TO SUPPLY FEE INFORMATION THAT MUST ACCOMPANY ALL CONSTRUCTION PERMIT APPLICATIONS. ***THIS APPLICATION MUST INCLUDE PAYMENT IN FULL TO BE DEEMED COMPLETE.*** MAKE CHECK OR MONEY ORDER PAYABLE TO THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY. SEND TO THE ADDRESS ABOVE. DO NOT SEND CASH. REFER TO INSTRUCTIONS (197-INST) FOR ASSISTANCE.

SOURCE INFORMATION

1) SOURCE NAME: Cottonwood Hills Recycling and Disposal Facility	
2) PROJECT NAME: Existing Open Flare	3) SOURCE ID NO. (IF APPLICABLE): 163075AAL
4) CONTACT NAME: Ernest Dennison	5) CONTACT PHONE NUMBER: (618) 271-6788

FEE DETERMINATION

6) FILL IN THE FOLLOWING THREE BOXES AS DETERMINED IN SECTIONS 1 THROUGH 4 BELOW:

$	+	$ 500	=	$ 500
SECTION 1 SUBTOTAL		SECTION 2, 3 OR 4 SUBTOTAL		GRAND TOTAL

SECTION 1: STATUS OF SOURCE / PURPOSE OF SUBMITTAL

7) YOUR APPLICATION WILL FALL UNDER ONLY ONE OF THE FOLLOWING SIX CATEGORIES DESCRIBED BELOW. CHECK THE BOX THAT APPLIES, ENTER THE CORRESPONDING FEE IN THE BOX TO THE RIGHT AND COPY THIS FEE INTO THE SECTION 1 SUBTOTAL BOX ABOVE. PROCEED TO APPLICABLE SECTIONS.

FOR PURPOSES OF THIS FORM:

- ***MAJOR SOURCE*** IS A SOURCE THAT IS REQUIRED TO OBTAIN A CAAPP PERMIT.
- ***SYNTHETIC MINOR* SOURCE** IS A SOURCE THAT HAS TAKEN LIMITS ON POTENTIAL TO EMIT IN A PERMIT TO AVOID CAAPP PERMIT REQUIREMENTS (E.G., FESOP).
- ***NON-MAJOR* SOURCE** IS A SOURCE THAT IS NOT A MAJOR OR SYNTHETIC MINOR SOURCE.

☐ EXISTING SOURCE WITHOUT STATUS CHANGE OR WITH STATUS CHANGE FROM SYNTHETIC MINOR TO MAJOR SOURCE OR VICE VERSA. ENTER $0 AND PROCEED TO SECTION 2.	$_____ SECTION 1 SUBTOTAL
☐ EXISTING NON-MAJOR SOURCE THAT WILL BECOME SYNTHETIC MINOR OR MAJOR SOURCE. ENTER $5,000 AND PROCEED TO SECTION 4.	
☐ EXISTING MAJOR OR SYNTHETIC MINOR SOURCE THAT WILL BECOME NON-MAJOR SOURCE. ENTER $4,000 AND PROCEED TO SECTION 3.	
☐ NEW MAJOR OR SYNTHETIC MINOR SOURCE. ENTER $5,000 AND PROCEED TO SECTION 4.	
☐ NEW NON-MAJOR SOURCE. ENTER $500 AND PROCEED TO SECTION 3.	
☐ AGENCY ERROR. IF THIS IS A TIMELY REQUEST TO CORRECT AN ISSUED PERMIT THAT INVOLVES ONLY AN AGENCY ERROR AND IF THE REQUEST IS RECEIVED WITHIN THE DEADLINE FOR A PERMIT APPEAL TO THE POLLUTION CONTROL BOARD, THEN ENTER $0. SKIP SECTIONS 2, 3 AND 4. PROCEED DIRECTLY TO SECTION 5.	

SECTION 2: SPECIAL CASE FILING FEE

8) FILING FEE. IF THE APPLICATION ONLY ADDRESSES ONE OR MORE OF THE FOLLOWING, CHECK THE APPROPRIATE BOXES, ENTER $500 IN THE SECOND BOX UNDER FEE DETERMINATION ABOVE, SKIP SECTIONS 3 AND 4 AND PROCEED DIRECTLY TO SECTION 5. OTHERWISE, PROCEED TO SECTION 3 OR 4, AS APPROPRIATE.

- ☒ ADDITION OR REPLACEMENT OF CONTROL DEVICES ON PERMITTED UNITS
- ☐ PILOT PROJECTS/TRIAL BURNS BY A PERMITTED UNIT
- ☐ APPLICATIONS ONLY INVOLVING INSIGNIFICANT ACTIVITIES UNDER 35 IAC 201.210 (MAJOR SOURCES ONLY)
- ☐ LAND REMEDIATION PROJECTS
- ☐ REVISIONS RELATED TO METHODOLOGY OR TIMING FOR EMISSION TESTING
- ☐ MINOR ADMINISTRATIVE-TYPE CHANGE TO A PERMIT

THIS AGENCY IS AUTHORIZED TO REQUIRE AND YOU MUST DISCLOSE THIS INFORMATION UNDER 415 ILCS 5/39. FAILURE TO DO SO COULD RESULT IN THE APPLICATION BEING DENIED AND PENALTIES UNDER 415 ILCS 5 ET SEQ. IT IS NOT NECESSARY TO USE THIS FORM IN PROVIDING THIS INFORMATION. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

APPLICATION PAGE _____

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197-FEE

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SECTION 3: FEES FOR CURRENT OR PROJECTED NON-MAJOR SOURCES	
9) IF THIS APPLICATION CONSISTS OF A SINGLE NEW EMISSION UNIT OR NO MORE THAN TWO MODIFIED EMISSION UNITS, ENTER $500.	9)
10) IF THIS APPLICATION CONSISTS OF MORE THAN ONE NEW EMISSION UNIT OR MORE THAN TWO MODIFIED UNITS, ENTER $1,000.	10)
11) IF THIS APPLICATION CONSISTS OF A NEW SOURCE OR EMISSION UNIT SUBJECT TO SECTION 39.2 OF THE ACT (I.E., LOCAL SITING REVIEW); A COMMERCIAL INCINERATOR OR A MUNICIPAL WASTE, HAZARDOUS WASTE, OR WASTE TIRE INCINERATOR; A COMMERCIAL POWER GENERATOR; OR AN EMISSION UNIT DESIGNATED AS A COMPLEX SOURCE BY AGENCY RULEMAKING, ENTER $15,000.	11)
12) IF A PUBLIC HEARING IS HELD (SEE INSTRUCTIONS), ENTER $10,000.	12)
13) SECTION 3 SUBTOTAL (ADD LINES 9 THROUGH 12) TO BE ENTERED ON PAGE 1.	13)

SECTION 4: FEES FOR CURRENT OR PROJECTED MAJOR OR SYNTHETIC MINOR SOURCES			
Application Contains Modified Emission Units Only	14) FOR THE FIRST MODIFIED EMISSION UNIT, ENTER $2,000.	14)	
	15) NUMBER OF ADDITIONAL MODIFIED EMISSION UNITS = _____ X $1,000.	15)	
	16) LINE 14 PLUS LINE 15, OR $5,000, WHICHEVER IS LESS.		16)
Application Contains New And/Or Modified Emission Units	17) FOR THE FIRST NEW EMISSION UNIT, ENTER $4,000.	17)	
	18) NUMBER OF ADDITIONAL NEW AND/OR MODIFIED EMISSION UNITS = _____ X $1,000.	18)	
	19) LINE 17 PLUS LINE 18, OR $10,000, WHICHEVER IS LESS.		19)
Application Contains Netting Exercise	20) NUMBER OF INDIVIDUAL POLLUTANTS THAT RELY ON A NETTING EXERCISE OR CONTEMPORANEOUS EMISSIONS DECREASE TO AVOID APPLICATION OF PSD OR NONATTAINMENT NSR = _____ X $3,000.		20)
Additional Supplemental Fees	21) IF THE NEW SOURCE OR EMISSION UNIT IS SUBJECT TO SECTION 39.2 OF THE ACT (I.E., SITING); A COMMERCIAL INCINERATOR OR OTHER MUNICIPAL WASTE, HAZARDOUS WASTE, OR WASTE TIRE INCINERATOR; A COMMERCIAL POWER GENERATOR; OR ONE OR MORE OTHER EMISSION UNITS DESIGNATED AS A COMPLEX SOURCE BY AGENCY RULEMAKING, ENTER $25,000.		21)
	22) IF THE SOURCE IS A NEW MAJOR SOURCE SUBJECT TO PSD, ENTER $12,000.		22)
	23) IF THE PROJECT IS A MAJOR MODIFICATION SUBJECT TO PSD, ENTER $6,000.		23)
	24) IF THIS IS A NEW MAJOR SOURCE SUBJECT TO NONATTAINMENT (NAA) NSR, ENTER $20,000.		24)
	25) IF THIS IS A MAJOR MODIFICATION SUBJECT TO NAA NSR, ENTER $12,000.		25)
	26) IF APPLICATION INVOLVES A DETERMINATION OF CLEAN UNIT STATUS AND THEREFORE IS NOT SUBJECT TO BACT OR LAER, ENTER $5,000 PER UNIT FOR WHICH A DETERMINATION IS REQUESTED OR OTHERWISE REQUIRED. _____ X $5,000.		26)
	27) IF APPLICATION INVOLVES A DETERMINATION OF MACT FOR A POLLUTANT AND THE PROJECT IS NOT SUBJECT TO BACT OR LAER FOR THE RELATED POLLUTANT UNDER PSD OR NSR (E.G., VOM FOR ORGANIC HAP), ENTER $5,000 PER UNIT FOR WHICH A DETERMINATION IS REQUESTED OR OTHERWISE REQUIRED. _____ X $5,000.		27)
	28) IF A PUBLIC HEARING IS HELD (SEE INSTRUCTIONS), ENTER $10,000.		28)
29) SECTION 4 SUBTOTAL (ADD LINES 16 AND LINES 19 THROUGH 28) TO BE ENTERED ON PAGE 1.			29)

SECTION 5: CERTIFICATION

NOTE: APPLICATIONS WITHOUT A SIGNED CERTIFICATION WILL BE DEEMED INCOMPLETE.

30) I CERTIFY UNDER PENALTY OF LAW THAT, BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE INFORMATION CONTAINED IN THIS FEE APPLICATION FORM IS TRUE, ACCURATE AND COMPLETE.

BY: Ernest H Dennison
SIGNATURE

District Engineer
TITLE OF SIGNATORY

Ernest H Dennison
TYPED OR PRINTED NAME OF SIGNATORY

11 / 14 / 11
DATE

APPLICATION PAGE _____

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E.I.L., LLC
26w271 Durfee Rd.
Wheaton, IL 60189
630-871-9855

PNC BANK, NATIONAL ASSOCIATION
70-2189/719

7499

11/9/2011

PAY TO THE ORDER OF Illinois Environmental Prot. Agency $ **500.00

Five Hundred and 00/100********** DOLLARS

Illinois Environmental Prot. Agency

Facility I.D. No. 163075AAL

MP

⑈007499⑈ ⑆071921891⑆ ⑈46030 83456⑈

WM01254

Attachment 2
CAAPP Form 199

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source

For Illinois EPA use only
ID No.:
Appl. No.:
Date Rec'd:
Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
Existing Open Flare - Revise Emission Factors and Emission Rates

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 1 6 3 0 7 5 A A L

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 0 6 1 0 0 0 5 8

4. Brief Description of Proposed Project:
The facility is proposing to use revised flare emission factors based on updated site-specific testing data and revise flare emission rates accordingly.

Source Information

1. Source name:* Cottonwood Hills Recycling and Disposal Facility

2. Source street address:* 10400 Hillstown Road

3. City:	4. County:	5. Zip code:*
Marissa	St. Clair	62257

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

6. Is the source located within city limits? ☒ Yes ☐ No
If no, provide Township Name:

7. Description of source and product(s) produced:	8. Primary Classification Code of source:
Municipal Solid Waste Landfill	SIC: 4 9 5 3 or NAICS: _ _ _ _ _ _

9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):
38:15:95	89:46:78

* Is information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant?	2. All correspondence to: (check one)
☒ Owner ☐ Operator	☐ Source ☒ Owner ☐ Operator
3. Applicant's FEIN:	4. Attention name and/or title for written correspondence:
36-2660859	Ernest H Dennison, District Engineer

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

WM01256

Owner Information*

1. Name: Waste Management of Illinois, Inc.

2. Address: 601 Madison Road

3. City:	4. State:	5. Zip code:
East St. Louis	IL	62201

* Is this information idifferent than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*

1. Name same as above

2. Address:

3. City:	4. State:	5. Zip code:

* Is this information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application

1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant

2. Applicant's technical contact person for application:
Ernest H Dennison, District Engineer

3. Contact person's telephone number(s)	4. Contact person's e-mail address:
(618) 271-6788 Ext 2122	ddennison@wm.com

5. Consultant for application:
Laura L. Niemann, EIL

6. Consultant's telephone number(s):	7. Consultant's e-mail address:
(616) 891-2592	lniemann@eil-michigan.com

Other Addresses for the Permit Applicant

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

1. Address for billing Site Fees for the source: ☐ Source ☐ Other (provide below):

2. Contact person for Site Fees:	3. Contact person's telephone number:

4. Address for Annual Emission Report for the source: ☐ Source ☐ Other (provide below):

5. Contact person for Annual Emission Report:	6. Contact person's telephone number:

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☐ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☐ Yes ☒ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☐ Yes ☐ No ☐ N/A* * Source not major ☒ Project not major ☒
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☐ Yes ☐ No ☒ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☐ Yes ☐ No ☒ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☒ Yes ☐ No ☐ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: 

AUTHORIZED SIGNATURE

Ernest H Dennison

TYPED OR PRINTED NAME OF SIGNATORY

District Engineer

TITLE OF SIGNATORY

11 14 11

DATE

Attachment 3

Summary of Request/Proposed Permit Language

Summary of Request:

The Cottonwood Hills RDF was issued an air construction permit for an open flare by the IEPA-BOA on January 10, 2007. Based on higher than expected methane readings (which are the basis for the NOx and CO calculations) and periodic analytical testing of the landfill gas, the facility is seeking to update/amend all of the criteria pollutant emissions rates and limits for the open flare.

The flare's permitted emissions rates were based on an assumed methane concentration of 54%. The facility has recently been measuring actual methane concentrations as high as 58%, and, is therefore seeking to re-permit the emissions rates in order to account for this higher methane concentration. Currently the flow rates for the flare are low enough so that the hourly and annual emissions are well below permitted limits.

Condition 6.b and 6.c of the construction permit required initial, then annual, sampling of the landfill gas entering the flare for several parameters, including NMOC and sulfur compounds. The sulfur values tested have typically been lower than the value used for the application (AP-42 concentration for sulfur compounds of 46.9 ppm was used in the emission calculations presented in the original construction permit application). However, in order to provide a margin of safety should the concentrations increase in the future, the facility is proposing to re-permit the existing flare's hourly and annual SO_2 emissions rates assuming a much higher value than (i.e. 300 ppm Cs).

The facility is also proposing to revise the methodology used in the application for calculating PM emissions, and will use AP-42 emissions factors instead. This will result in an increase in PM emissions.

Proposed Permit Language:

The construction permit condition containing the current emissions rates for the flare, Condition 3.a, should be revised as follows (old values/text stricken out, proposed values/text in bold italics). Please note that the facility is also requesting inclusion of the emission factors in terms of lbs/mmbtu (based on Lower Heating Value) as listed in the table below.

Pollutant	Emissions		
	(Lbs/mmbtu)	(Lbs/Hour)	(Tons/Year)
NO_x	***0.068***	~~4.0~~ ***6.45***	~~26.4~~ ***28.34***
CO	***0.37***	~~32.7~~ ***35.11***	~~143.~~6 ***154.22***
VOM	***0.0068***	~~0.48~~ ***0.64***	~~2.1~~ ***2.82***
SO_2	***0.094***	~~1.4~~ ***8.97***	~~6.1~~ ***39.38***
PM	***0.0187***	~~0.26~~ ***1.77***	~~1.13~~ ***7.79***
Total HAPs	***N/A***	0.1	0.44

Calculations supporting these new emissions rates are included in Attachment 6.

Attachment 4
Discussion of NSR/PSD Applicability

Discussion of NSR/PSD Applicability

The operation of the 3,000 cfm flare using a methane quality of 58% results in the following revised emissions rates:

Parameter	Revised Emissions from 3,000 scfm Flare (tons/year)	Major Source Thresholds (tons/year)	Source Status
NOx	28.34	N/A	N/A
CO	154.22	250	Minor for PSD Purposes
VOM	2.82	50	Minor for NSR Purposes
SO_2	39.38	250	Minor for PSD Purposes
PM/PM_{10}	7.79	250	Minor for PSD Purposes
HAPs	0.41	10 tons per pollutant or 25 tpy in total	Minor for Title V Purposes

The Cottonwood Hills RDF is located in St. Clair County. The following table summarizes the attainment status of the area for each criteria pollutant:

Constituent	Attainment Status
TSP	Better than National Standards
SO_2	AQCR 70 (includes St. Clair County) is Better than National Standards
CO	St. Clair County: Unclassifiable/Attainment
NO_2	AQCR 70: Cannot be Classified or is Better than National Standards
Ozone	St. Clair County: 1 hr standard – Attainment as of 5/12/03 (Note - The 1-hour ozone standard is revoked effective June 15, 2005 for all areas in Illinois. The Jersey Co. and St. Louis areas are maintenance areas for the 1-hour NAAQS for purposes of 40 CFR part 51 subpart X).
Ozone	St. Clair County: 8 hr standard – Nonattainment/Subpart 2 /Moderate
PM-10	St. Clair County: Unclassifiable 11/15/90
PM-2.5 (Annual NAAQS)	St. Clair County: Nonattainment
PM-2.5 (24-hr NAAQS)	St. Clair County: Unclassifiable/Attainment (both 1997 and 2006 NAAQS)

Increases in emissions from this modification are as follows:

Constituent	Emissions from Flare at 54% CH_4 (tpy)	Emissions from Flare at 58% CH_4 (tpy)	Project Emissions Increase (tons/year)	Significance Threshold for Minor Source (tons/year)	PSD/ NSR Modification Status
CO	143.6	154.2	10.6	250.0	Minor
NOx	26.4	28.3	1.9	100.0	Minor
SO_2	6.1	39.4	33.3	100.0	Minor
VOM	2.1	2.8	0.7	100.0	Minor
PM/PM-10/ PM2.5	1.13	7.8	6.67	100.0	Minor

Therefore, this is a minor modification to a minor source. Since the potential to emit (PTE) for the entire source after the modification will remain less than 250 tons/year for CO, this source will remain a minor PSD source after this modification. Likewise, the PTE for the source for other non-attainment criteria pollutants and surrogates will remain below 100 tons/year.

A Clean Air Act Permit Program (CAAPP) Permit (No. 01040051) was issued by the Illinois Environmental Protection Agency (IEPA) on November 6, 2002. However, this permit expired on November 6, 2007. A timely CAAPP Permit Renewal Application was submitted to IEPA on January 25, 2007. Issuance of a renewed CAAPP Permit is still pending. When IEPA approves this request of revising the emission factors and emission limits for the open flare via issuance of a modified construction permit, the facility will submit a CAAPP modification/additional information to renewal application requesting that the same changes be incorporated into the facility's pending CAAPP renewal Permit.

Attachment 5
Revised CAAPP Form 260

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FOR APPLICANT'S USE
Revision #: _____
Date: ___ / ___ / ___
Page _____ of _____
Source Designation:
_____

AIR POLLUTION CONTROL EQUIPMENT DATA AND INFORMATION

FOR AGENCY USE ONLY
ID NUMBER:
CONTROL EQUIPMENT #:
DATE:

THIS FORM MUST BE COMPLETED FOR EACH AIR POLLUTION CONTROL EQUIPMENT. COMPLETE AND PROVIDE THIS FORM IN ADDITION TO THE APPLICABLE ADDENDUM FORM 260-A THROUGH 260-K. A SEPARATE FORM MUST BE COMPLETED FOR EACH MODE OF OPERATION OF AIR POLLUTION CONTROL EQUIPMENT FOR WHICH A PERMIT IS BEING SOUGHT.

SOURCE INFORMATION

1) SOURCE NAME:
Cottonwood Recycling and Disposal Facility

2) DATE FORM PREPARED: **November 2011**	3) SOURCE ID NO. (IF KNOWN): **163075AAL**

GENERAL INFORMATION

4) NAME OF AIR POLLUTION CONTROL EQUIPMENT AND/OR CONTROL SYSTEM:

Open Flare for Landfill

5) FLOW DIAGRAM DESIGNATION OF CONTROL EQUIPMENT AND/OR CONTROL SYSTEM:

3,000 scfm Open Flare

6) MANUFACTURER OF CONTROL EQUIPMENT (IF KNOWN):

LFG Specialities LLC

7) MODEL NUMBER (IF KNOWN):	8) SERIAL NUMBER (IF KNOWN):
CFT1242I10	
9) DATES OF COMMENCING CONSTRUCTION, OPERATION AND/OR MOST RECENT MODIFICATION OF THIS EQUIPMENT (ACTUAL OR PLANNED)	a) CONSTRUCTION (MONTH/YEAR): **January 2008**
	b) OPERATION (MONTH/YEAR): **February 2008**
	c) LATEST MODIFICATION (MONTH/YEAR): **N/A**

10) BRIEFLY DESCRIBE MODIFICATION (IF APPLICABLE):

The facility is requesting to revised the flare emission rates based on revised emission factors and most recent site-specfic sampling results.

THIS AGENCY IS AUTHORIZED TO REQUIRE THIS INFORMATION UNDER ILLINOIS REVISED STATUTES, 1991, AS AMENDED 1992, CHAPTER 111 1/2, PAR. 1039.5. DISCLOSURE OF THIS INFORMATION IS REQUIRED UNDER THAT SECTION. FAILURE TO DO SO MAY PREVENT THIS FORM FROM BEING PROCESSED AND COULD RESULT IN THE APPLICATION BEING DENIED. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

FOR APPLICANT'S USE
_____

APPLICATION PAGE _____

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11) LIST ALL EMISSION UNITS AND OTHER CONTROL EQUIPMENT DUCTING EMISSIONS TO THIS CONTROL EQUIPMENT:

NAME	DESIGNATION OR CODE NUMBER
Cottonwood Hills RDF	MSW Landfill

12) DOES THE CONTROL EQUIPMENT HAVE MORE THAN ONE MODE OF OPERATION? ☐ YES ■ NO

IF YES, EXPLAIN AND IDENTIFY WHICH MODE IS COVERED BY THIS FORM (NOTE: A SEPARATE AIR POLLUTION CONTROL EQUIPMENT FORM 260-CAAPP MUST BE COMPLETED FOR EACH MODE):

13) IDENTIFY ALL ATTACHMENTS TO THIS FORM RELATED TO THIS AIR POLLUTION CONTROL EQUIPMENT(E.G., TECHNICAL DRAWINGS):

N/A

OPERATING SCHEDULE

14) IDENTIFY ANY PERIOD WHEN THE CONTROL EQUIPMENT WILL NOT BE OPERATING DUE TO SCHEDULED MAINTENANCE AND/OR REPAIRS WHEN THE FEEDING EMISSION UNIT(S) TO THIS CONTROL EQUIPMENT IS/ARE IN OPERATION:

N/A – the collection system is shut down while flare isundergoing maintenance, so that no uncombusted gas is emitted to the atmosphere.

15a) IDENTIFY ANY PERIODS DURING OPERATION OF THE FEEDING EMISSION UNIT(S) WHEN THE CONTROL EQUIPMENT IS/ARE NOT USED:

N/A – the gas collection system will not operate if the flare is not operating.

b) IS THIS CONTROL EQUIPMENT IN OPERATION AT ALL OTHER TIMES THAT THE FEEDING EMISSION UNIT(S) IS/ARE IN OPERATION? ■ YES ☐ NO

IF NO, EXPLAIN AND PROVIDE THE DURATION OF THE CONTROL EQUIPMENT DOWNTIME:

APPLICABLE RULES

16) PROVIDE ANY SPECIFIC EMISSION STANDARD(S) AND LIMITATION(S) SET BY RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT (E.G., VOM, IAC 218.207(b)(1), 81% OVERALL & 90% CONTROL DEVICE EFF.):

REGULATED AIR POLLUTANT(S)	EMISSION STANDARD(S)	REQUIREMENT(S)
NMOC	40 CFR 60 Subpart WWW	Comply with 40 CFR 60.18 to achieve 98% destruction efficiency of NMOC
Visible Emissions	40 CFR 60.18	Visible emissions cannot exceed 5 minutes in any 2 hour period
HAPs	40 CFR 63 Subpart AAAA	Prepare Start-up, Shutdown and Malfunction Plan for all control devices

17) PROVIDE ANY SPECIFIC RECORDKEEPING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	RECORDKEEPING RULE(S)	REQUIREMENT(S)
ALL	IAC 201.301	Recordkeeping
NMOC	40 CFR 60 Subpart WWW	Multiple requirements listed in current CAAPP Permit
HAPs	40 CFR 63 Subpart AAAA	Record duration of start-up, shutdown and malfunction events per SSM Plan

18) PROVIDE ANY SPECIFIC REPORTING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	REPORTING RULE(S)	REQUIREMENT(S)
ALL	IAC 201.302(a)	Annual Report
NMOC	40 CFR 60 Subpart WWW	Multiple requirements listed in current CAAPP Permit
HAPs	40 CFR 63 Subpart AAAA	Semiannual SSM plan report

19) PROVIDE ANY SPECIFIC MONITORING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	MONITORING RULE(S)	REQUIREMENT(S)
ALL	IAC 201.281(a)	Monitoring as required by Agency
NMOC	40 CFR 60 Subpart WWW	Multiple requirements listed in current CAAPP Permit

20) PROVIDE ANY SPECIFIC TESTING RULES AND/OR PROCEDURES WHICH ARE APPLICABLE TO THIS EMISSION UNIT :

REGULATED AIR POLLUTANT(S)	TESTING RULE(S)	REQUIREMENT(S)
ALL	IAC 201.301	Testing as required by Agency
NMOC	40 CFR 60 Subpart WWW	Initial performance test within 180 days of installation

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COMPLIANCE INFORMATION

21) IS THE CONTROL SYSTEM IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS? ■ YES ☐ NO

IF NO, THEN FORM 294-CAAPP "COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE -- ADDENDUM FOR NON COMPLYING EMISSION UNITS" MUST BE COMPLETED AND SUBMITTED WITH THIS APPLICATION.

22) EXPLANATION OF HOW INITIAL COMPLIANCE IS TO BE, OR WAS PREVIOUSLY, DEMONSTRATED:

An intial performance test was conducted on the utility flare on April 17, 2008 in accordance with the schedule dictated by the NSPS. The test included visible emissions using Method 22, determination of exit velocity, and determination of fuel heating value. The flare demonstrated compliance with all NSPS standards.

The facility continues to conduct annual gas quality testing as required by Condition 6.0 of the Construction Permit Application No: 060100058.

23) EXPLANATION OF HOW ONGOING COMPLIANCE WILL BE DEMONSTRATED:

Visual monitoring of flare periodically for visible emissions.

TESTING, MONITORING, RECORDKEEPING AND REPORTING

24a) LIST THE PARAMETERS THAT RELATE TO AIR EMISSIONS FOR WHICH RECORDS ARE BEING MAINTAINED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE UNIT OF MEASUREMENT, THE METHOD OF MEASUREMENT, AND THE FREQUENCY OF SUCH RECORDS (E.G., HOURLY, DAILY, WEEKLY):

PARAMETER	UNIT OF MEASUREMENT	METHOD OF MEASUREMENT	FREQUENCY
Flow	**Scfm**	**Orifice Plate, Pitot Tube or chart recorder**	**Monthly**
Run Time	**Hours**	**Visual observation of blower run hours**	**Annually**

24b) BRIEFLY DESCRIBE THE METHOD BY WHICH RECORDS WILL BE CREATED AND MAINTAINED. FOR EACH RECORDED PARAMETER INCLUDE THE METHOD OF RECORDKEEPING, TITLE OF PERSON RESPONSIBLE FOR RECORDKEEPING, AND TITLE OF PERSON TO CONTACT FOR REVIEW OF RECORDS:

PARAMETER	METHOD OF RECORDKEEPING	TITLE OF PERSON RESPONSIBLE	TITLE OF CONTACT PERSON
Flow	**Manual records**	**Wellfield Technician**	**Site Manager**
Run Time	**Manual records**	**Wellfield Technician**	**Site Manager**

c) IS COMPLIANCE OF THE CONTROL EQUIPMENT READILY DEMONSTRATED BY REVIEW OF THE RECORDS? ■ YES ☐ NO

IF NO, EXPLAIN:

d) ARE ALL RECORDS READILY AVAILABLE FOR INSPECTION, COPYING AND/OR SUBMITTAL TO THE AGENCY UPON REQUEST? ■ YES ☐ NO

IF NO, EXPLAIN:

25a) DESCRIBE ANY MONITORS OR MONITORING ACTIVITIES USED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE:

Flow monitor measures flow, thermocouple confirms presence of flame.

b) WHAT OPERATING PARAMETER(S) IS(ARE) BEING MONITORED (E.G., COMBUSTION CHAMBER TEMPERATURE)?

Flow and presence of flame.

c) DESCRIBE THE LOCATION OF EACH MONITOR (E.G., EXIT OF COMBUSTION CHAMBER):

Flow monitor is located at flare piping inlet. Thermocouple is located at the stack.

25d) IS EACH MONITOR EQUIPPED WITH A RECORDING DEVICE? ☒ YES ☐ NO

IF NO, LIST ALL MONITORS WITHOUT A RECORDING DEVICE:

e) IS EACH MONITOR REVIEWED FOR ACCURACY ON AT LEAST A QUARTERLY BASIS? ☐ YES ■ NO

IF NO, EXPLAIN:

Monitors are reviewed in accordance with manufacturer's specifications, or at a minimum, on an annual basis.

f) IS EACH MONITOR OPERATED AT ALL TIMES THE CONTROL EQUIPMENT IS IN OPERATION? ■ YES ☐ NO

IF NO, EXPLAIN:

26) PROVIDE INFORMATION ON THE MOST RECENT TESTS, IF ANY, IN WHICH THE RESULTS ARE USED FOR PURPOSES OF THE DETERMINATION OF FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE TEST DATE, TEST METHOD USED, TESTING COMPANY, OPERATING CONDITIONS EXISTING DURING THE TEST AND A SUMMARY OF RESULTS. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 260-1:

TEST DATE	TEST METHOD	TESTING COMPANY	OPERATING CONDITIONS	SUMMARY OF RESULTS
June 24, 2010 & October 28, 2010	**Method 3C, Method 2D & Method 22**	**Aquaterra Environmental Solutions, Inc./Test America/Columbia Analytical Services**	**Normal**	**Average Net Heating Value – 19.43 MJ/scm. Average Exit Velocity 5.63 m/s, Average Sulfur Concentrations of 27.2 and 39.4 ppm, No Detectable Visible Emissions**

27) DESCRIBE ALL REPORTING REQUIREMENTS AND PROVIDE THE TITLE AND FREQUENCY OF REPORT SUBMITTALS TO THE AGENCY:

REPORTING REQUIREMENTS	TITLE OF REPORT	FREQUENCY
35 IAC 201.302(a)	**Annual Report**	**Annual**

CAPTURE AND CONTROL

28) DESCRIBE THE CAPTURE SYSTEM USED TO CONTAIN, COLLECT AND TRANSPORT EMISSIONS TO THE CONTROL EQUIPMENT. INCLUDE ALL HOODS, DUCTS, FANS, ETC. ALSO INCLUDE THE METHOD OF CAPTURE USED AT EACH EMISSION POINT. (IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 260-2):

An active gas extraction system is installed within landfill disposal areas. Each gas extraction well is connected to a series of horizontal pipes called "header lines". A vacuum is induced on this header line from the flare's blower. The applied vacuum pulls the landfill gas from each well into the header line, which then conveys the gas to the control device.

29) ARE FEATURES OF THE CAPTURE SYSTEM ACCURATELY DEPICTED IN THE FLOW DIAGRAM CONTAINED IN THIS APPLICATION? ■ YES ☐ NO

Flow Diagram submitted with the original Construction Permit Application

IF NO, A SKETCH SHOWING THE FEATURES OF THE CAPTURE SYSTEM SHOULD BE ATTACHED AND LABELED AS EXHIBIT 260-3:

30) PROVIDE THE ACTUAL (MINIMUM AND TYPICAL) CAPTURE SYSTEM EFFICIENCY, CONTROL EQUIPMENT DESTRUCTION/REMOVAL EFFICIENCY, AND THE OVERALL REDUCTION EFFICIENCY PROVIDED BY THE COMBINATION OF THE CAPTURE SYSTEM AND CONTROL EQUIPMENT FOR EACH REGULATED AIR POLLUTANT TO BE CONTROLLED. ATTACH THE CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH THESE EFFICIENCIES WERE BASED AND LABEL AS EXHIBIT 260-4:

a) CONTROL PERFORMANCE:

	REGULATED AIR POLLUTANT	CAPTURE SYSTEM EFFICIENCY (%)		CONTROL EQUIPMENT EFFICIENCY (%)		OVERALL REDUCTION EFFICIENCY (%)	
		(MIN)	(TYP)	(MIN)	(TYP)	(MIN)	(TYP)
i	**VOM**	**75**	**80**	**98**	**98**	**74-78**	**74-78**
ii	**HAPs**	**75**	**80**	**98**	**98**	**74-78**	**74-78**
iii							

iv. EXPLAIN ANY OTHER REQUIRED LIMITS ON CONTROL EQUIPMENT PERFORMANCE SUCH AS OUTLET CONCENTRATION, COOLANT TEMPERATURE, ETC.:

No visible emissions per 40 CFR 60.18.

b) METHOD USED TO DETERMINE EACH OF THE ABOVE EFFICIENCIES (E.G., STACK TEST, MATERIAL BALANCE, MANUFACTURER'S GUARANTEE, ETC.) AND THE DATE LAST TESTED, IF APPLICABLE:

	EFFICIENCY DETERMINATION METHOD	DATE LAST TESTED
CAPTURE:	**Engineering Estimate**	**N/A**
CONTROL:	**Manufacturer's Emission Information**	**N/A**
OVERALL:	**Calculated**	**N/A**

c) REQUIRED PERFORMANCE:

	REGULATED AIR POLLUTANT	CAPTURE SYSTEM EFFICIENCY (%)	CONTROL EQUIPMENT EFFICIENCY (%)	OVERALL REDUCTION EFFICIENCY (%)	APPLICABLE RULE
i	**NMOC**	**NA**	**98%**	**N/A**	**40 CFR 60 Subpart WWW**
ii					
iii					

iv EXPLAIN ANY OTHER REQUIRED LIMITS ON CONTROL EQUIPMENT PERFORMANCE SUCH AS OUTLET CONCENTRATION, COOLANT TEMPERATURE, ETC.:

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(31)EMISSION INFORMATION (3,000 SCFM FLARE)

REGULATED AIR POLLUTANT		[1]ACTUAL EMISSION RATE					ALLOWABLE BY RULE EMISSION RATE			[2]PERMITTED EMISSION RATE	
		LBS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[3]OTHER TERMS	[4]DM	[5]RATE (UNITS)	APPLICABLE RULES	TONS PER YEAR (TONS/YR)	RATE (UNITS)	TONS PER YEAR (TONS/YR)
CARBON MONOXIDE (CO)	MAXIMUM:	35.1	154.2				( )			35.1 lbs/hr	154.2
	TYPICAL:						( )				
LEAD	MAXIMUM:						( )				
	TYPICAL:						( )				
NITROGEN OXIDES (NOx)	MAXIMUM:	6.5	28.5				( )			6.5 lbs	28.5
	TYPICAL:						( )				
PARTICULATE MATTER (PART)	MAXIMUM:	1.8	8.0				( )			1.8 lbs/hr	8.0
	TYPICAL:						( )				
PARTICULATE MATTER <= 10 MICROMETERS (PM10)	MAXIMUM:						( )			SAME AS PART	SAME AS PART
	TYPICAL:						( )				
SULFUR DIOXIDE (SO2)	MAXIMUM:	9.0	40.0				( )			9.0 lbs/hr	40.0
	TYPICAL:						( )				
VOLATILE ORGANIC MATERIAL (VOM)	MAXIMUM:	0.7	3.1				( )			0.7 lbs/hr	3.1
	TYPICAL:						( )				
OTHER, SPECIFY: _____	MAXIMUM:						( )				
	TYPICAL:						( )				
EXAMPLE: PARTICULATE MATTER	MAXIMUM:	*5.00*	*21.9*	*0.3 GR/DSCF*		*1*	*6.0 (LBS/HR)*	*212.321*	*26.28*	*5.5 LBS/HR*	*22*
	TYPICAL:	*4.00*	*14.4*	*0.24 GR/DSCF*		*4*	*5.5 (LBS/HR)*	*212.321*	*19.80*		

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 260-5.

[1]PROVIDE CONTROLLED EMISSIONS (E.G., THE EMISSIONS THAT WOULD RESULT AFTER ALL CONTROL AND CAPTURE EFFICIENCIES ARE ACCOUNTED FOR).
[2]PROVIDE THE EMISSION RATE THAT WILL BE USED AS A PERMIT SPECIAL CONDITION. THIS LIMIT WILL BE USED TO DETERMINE THE PERMIT FEE.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G. PPM, GR/DSCF, ETC.)
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS), 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS)
[5]RATE - ALLOWABLE EMISSION RATE SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

(32) HAZARDOUS AIR POLLUTANT EMISSION INFORMATION

HAP INFORMATION		[1]ACTUAL EMISSION RATE					ALLOWABLE BY RULE	
NAME OF HAP EMITTED	[2]CAS NUMBER		POUNDS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[4]DM	[5]RATE OR STANDARD	APPLICABLE RULE
PROVIDED PREVIOUSLY – NO CHANGE		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
		MAXIMUM:						
		TYPICAL:						
EXAMPLE:		MAXIMUM:	*10.0*	*1.2*		*2*	*98% by wt control device*	*CFR 61*
Benzene	*71432*	TYPICAL:	*8.0*	*0.8*		*2*	*leak-tight trucks*	*61.302(b),(d)*

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 260-6.

[1]PROVIDE CONTROLLED EMISSIONS (E.G., THE EMISSIONS THAT WOULD RESULT AFTER ALL CONTROL AND CAPTURE EFFICIENCIES ARE ACCOUNTED FOR).
[2]CAS - CHEMICAL ABSTRACT SERVICE NUMBER.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G., PPM, GR/DSCF, ETC.).
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS, 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS).
[5]RATE - ALLOWABLE EMISSION RATE OR STANDARD SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

EXHAUST POINT INFORMATION

33) DESCRIPTION OF EXHAUST POINT (STACK, VENT, ROOF MONITOR, INDOORS, ETC.). IF THE EXHAUST POINT DISCHARGES INDOORS, DO NOT COMPLETE THE REMAINING ITEMS.

Stack

34) DISTANCE TO NEAREST PLANT BOUNDARY FROM EXHAUST POINT DISCHARGE (FT):

35) DISCHARGE HEIGHT ABOVE GRADE (FT):

42

36) GOOD ENGINEERING PRACTICE (GEP) HEIGHT, IF KNOWN (FT):

37) DIAMETER OF EXHAUST POINT (FT): NOTE: FOR A NON CIRCULAR EXHAUST POINT, THE DIAMETER IS 1.128 TIMES THE SQUARE ROOT OF THE AREA. **1.0**

38) EXIT GAS FLOW RATE **Pre-combustion – gas is not combusted until after it exits stack**	a) MAXIMUM (ACFM): **3,000 scfm**	b) TYPICAL (ACFM):
39) EXIT GAS TEMPERATURE **Combustion temperature**	a)MAXIMUM (°F): **>1200**	b) TYPICAL (°F):

40) DIRECTION OF EXHAUST (VERTICAL, LATERAL, DOWNWARD):

Vertical

41) LIST ALL EMISSION UNITS AND CONTROL DEVICES SERVED BY THIS EXHAUST POINT:

NAME	FLOW DIAGRAM DESIGNATION
a) **Landfill**	**Landfill**
b) **Open Flare**	**Flare**
c)	
d)	
e)	
f)	
g)	

42) WHAT PERCENTAGE OF THE CONTROL EQUIPMENT EMISSIONS ARE BEING DUCTED TO THIS EXHAUST POINT (%)?

100%

43) IF THE PERCENTAGE OF THE CONTROL EQUIPMENT EMISSIONS BEING DUCTED TO THE EXHAUST POINT IS NOT 100%, THEN EXPLAIN WHERE THE REMAINING EMISSIONS ARE BEING EXHAUSTED TO:

THE FOLLOWING INFORMATION NEED ONLY BE SUPPLIED IF READILY AVAILABLE.

44a) LATITUDE:	b) LONGITUDE:	
45) UTM ZONE:	b) UTM VERTICAL (KM):	c) UTM HORIZONTAL (KM):

WM01275

Attachment 6

Updated Open Flare Emissions Calculations – Criteria Pollutants

Cottonwood RDF
Calculation of Maximum Potential Emissions - 3,000 scfm Flare

Maximum Gas Flow Rate:	3000	cfm
	180000	scfh
Maximum Operating Hours	8784	hours
Gas Quality	527.22	btu/ft3 (LHV)
	586.96	btu/ft3 (HHV)

Other Data:

NMOC	800	ppm as hexane (Engineering Estimate)
Cs	300	ppm (Reduced Sulfur Compound Concentration, Engineering Estimate)
PM10/PM2.5	17	lbs/MMDSCF methane - from AP-42, Chapter 2.4 - Table 2.4-1 (11/98)
NMOC	98.00%	(typical manufacturer's destruction efficiency)
CH4	58%	Estimated Landfill Methane Concentration

Calculate maximum throughput in mmbtu/hr:

3000 cfm x 527.2 btu/ft3 x 1 mmbtu/1,000,000 btu = 1.5817 mmbtu/min

= 94.9 mmbtu/hr (LHV)

105.65 mmbtu/hr (HHV)

Emission Factors:

NOx	0.068	lbs/mmbtu	Typical Flare Manufacturer's Emissions Factor
CO	0.37	lbs/mmbtu	Typical Flare Manufacturer's Emissions Factor

Calculate Actual Emissions for Criteria Pollutants

SO2

300	ppm H2S x	64	mol. Wt. SO2 x	180,000	scfh x	8784	hrs x	1 T x	=		actual	=		
1,000,000		385.4	scf/lb-mole				yr	2000 lbs		**39.38**	tons/year		**8.97**	lbs/hour

NOx

											actual	=		
94.90	mmbtu/hr x	0.068	lbs/mmbtu x	8784	hrs x	1 ton/2000 lbs	=			**28.34**	tons/year		**6.45**	lbs/hour

NMOC

800	ppm NMOC x	86	mol. Wt. Hex. *	180,000	scfh x	8784	hrs x	1 T x	(1 - .98) =		actual	=		
1,000,000		385.4	scf/lb-mole				year	2000 lbs		**2.82**	tons/year		**0.64**	lbs/hour

CO

											actual	=		
94.90	mmbtu/hr x	0.37	lbs/mmbtu x	8784	hrs x	1 ton/2000 lbs	=			**154.22**	tons/year		**35.11**	lbs/hour

PM-10/PM2.5

17	lbs PM x	180,000	scf LFG x	58%	CH4 x	1 MMDSCF x	8784	hrs x	1 T =		actual	=		
	MMDSCFCH4		hr		LFG	1,000,000		year	2000 lbs	**7.79**	tons/year		**1.77**	lbs/hour

Attachment 7

GHG Emissions Calculations for Source and Flare

GHG Emissions Calculations for Source and Flare

Emissions of Greenhouse Gas (GHG) must be evaluated under the GHG Tailoring Rule (75 FR 31514, June 3, 2010). This evaluation will be in two parts – first, is the existing landfill a major or minor source of GHG, and secondly, is the project (increase in methane quality used for emissions calculations at the open flare) a minor or major modification of GHG?

Existing Source GHG Status

Pursuant to 40 CFR 70.2(2), fugitive emissions from a source are not considered in determining whether the source is a major stationary source for the purposes of Section 302(j) of the Act, unless the source belongs to one of the listed major source categories: coal cleaning plants, kraft pulp mills, portland cement plants, primary zinc smelters, etc. Municipal Solid Waste Landfills are not listed under the major source categories. Fugitive GHG emissions from the landfill are therefore not evaluated to determine if the site is a major source of GHG emissions.

Since fugitive emissions are not counted for Title 1 applicability, the only sources of GHG emissions to be evaluated are the stationary combustion sources at the site (LFG flare and ceiling mounted propane heaters in the shop).

On July 1, 2011 the USEPA issued a three year deferral from PSD and Title V permitting requirements for CO_2 emissions from bioenergy and other biogenic stationary sources (including landfills). Therefore, biogenic CO_2 emissions are not included in the greenhouse gas (GHG) emissions evaluation with respect to PSD.

The anthropogenic GHG emissions from the flare and stationary combustion units at the site are:

Category	Total Anthropogenic GHG Emissions (tons/year CO_2e)
Flare	249.0
Stationary Combustion	414.8
Combined	663.8

The existing site is minor under PSD for anthropogenic GHG emissions since non-fugitive emissions are less than 100,000 tons/year.

Project's GHG Emissions Increases

The change in anthropogenic emissions of GHG at a 54% methane concentration (original permit application assumptions) to a 58% methane concentration (modified permit application assumptions) was evaluated as the "project". GHG emissions calculations at both methane concentrations are attached. The net increase is:

Category	Anthropogenic GHG Emissions (tons/year CO_2e)
Flare GHG at 54% CH_4	249.0
Flare GHG at 58% CH_4	267.0
Net GHG Increase	18.0

Since the net increase in GHG emissions for this "project" are less than 100,000 tons/year (minor modification to a minor source), this proposed emissions factor modification does not trigger PSD for GHG.

Greenhouse Gas (GHG) Calculator for Landfill Gas Combustion Devices

Table C-1 Factors*		
CO2 =	52.07	kg/MMBtu (HHV)
N2O =	6.30E-04	kg/MMBtu (HHV)
CH4 =	3.20E-03	kg/MMBtu (HHV)

*40 CFR 98 Subpart C

Source List				
Unit ID	Unit Type	Maximum Heat Input Rating (MMBtu/hr)	Type of Fuel	Calculation Tier
1	Utility Flare	94.9	LFG	2

Flow Rate scfm	Hours of Operation	Methane Conc.	Btu Content Btu/scf	Heat Rate MMBtu/hr
3000	8760	58%	586.96	105.6528

Global warming potential (GWP) of methane (CH_4) = 21 (Reference 1)

Global warming potential (GWP) of nitrous oxide (N_2O) = 310 (Reference 1)

References:

1. Table A–1 to Subpart A of 40 CFR Part 98 - Global Warming Potentials

CO2 metric tons	N2O metric tons	CH4 metric tons	N2O metric tons as CO2e	CH4 metric tons as CO2e
48191.7	0.58	2.96	180.8	62.2
CO2 tons	**N2O tons**	**CH4 tons**	**N2O tons**	**CH4 tons**
53010.9	0.6	3.3	198.8	68.4
CO2 lbs/hour	**N2O lbs/hour**	**CH4 lbs/hour**	**N2O as CO2e lbs/hour**	**CH4 as CO2e lbs/hour**
12103.0	0.15	0.74	45.39	15.62
CO2 Emissions are biogenic	N2O and CH4 emissions are anthropogenic			

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Greenhouse Gas (GHG) Calculator for Landfill Gas Combustion Devices

Table C-1 Factors*		
CO2 =	52.07	kg/MMBtu (HHV)
N2O =	6.30E-04	kg/MMBtu (HHV)
CH4 =	3.20E-03	kg/MMBtu (HHV)

*40 CFR 98 Subpart C

Source List				
Unit ID	Unit Type	Maximum Heat Input Rating (MMBtu/hr)	Type of Fuel	Calculation Tier
1	Utility Flare	88.4	LFG	2

Flow Rate scfm	Hours of Operation	Methane Conc.	Btu Content Btu/scf	Heat Rate MMBtu/hr
3000	8760	54%	546.48	98.3664

Global warming potential (GWP) of methane (CH_4) = 21 (Reference 1)

Global warming potential (GWP) of nitrous oxide (N_2O) = 310 (Reference 1)

References:

1. Table A-1 to Subpart A of 40 CFR Part 98 - Global Warming Potentials

CO2 metric tons	N2O metric tons	CH4 metric tons	N2O metric tons as CO2e	CH4 metric tons as CO2e	Total Anthropogenic metric tons as CO2e
44868.2	0.54	2.76	168.3	57.9	226
CO2 tons	N2O tons	CH4 tons	N2O tons	CH4 tons	English tons
49355.0	0.6	3.0	185.1	63.7	249
CO2 lbs/hour	N2O lbs/hour	CH4 lbs/hour	N2O as CO2e lbs/hour	CH4 as CO2e lbs/hour	
11268.3	0.14	0.69	42.26	14.54	
CO2 Emissions are biogenic	N2O and CH4 emissions are anthropogenic				

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Comfort Heater Greenhouse Gas Pollutant Emissions
Propane-Fueled
Cottonwood Hills RDF

Use the following equation from 40 CFR 98 Subpart C (Tier 1 Calculation Methodology):

$CO_2 = 1 \times 10^{-3} * Fuel * HHV * EF$ (Equation C-1)

Where:

CO_2 = Annual CO_2 mass emissions for the specific fuel type (metric tons)
Fuel = Mass or volume of fuel combusted per year, from company records
HHV = Default high heat value of the fuel, from Table C-1 of Subpart C (mmBTU per mass or volume, as applicable)
EF = Fuel-specific default CO2 emission factor, from Table C-1 of this subpart (kg CO2/mmBtu)
1×10^{-3} = Conversion factor from kilograms to metric tons

Other information:

Fuel Type	Heating Value (mmbtu/gal)
Propane	0.091

From 40 CFR 98 Table C-2

Parameter	Propane Default Emission Factor (kg/mmbtu)
CO_2	61.46
CH_4	0.0011
N_2O	0.00011

Global warming potential (GWP) of methane (CH_4) = 21 (Reference 1)
Global warming potential (GWP) of nitrous oxide (N_2O) = 310 (Reference 1)

References:

1. Table A–1 to Subpart A of 40 CFR Part 98 - Global Warming Potentials

Device/Emissions Unit	Rated Capacity (mmbtu/hour)	Rated Fuel Usage (gal LPG/hr)	Max Throughput gallons/year	Maximum Annual Operating Hours	CO_2 Emissions Metric Tons/year	CH_4 Emissions Metric Tons/year	Conversion to CO_2e Metric tons/year	N_2O Emissions Metric Tons/year	Conversion to CO_2e - Metric tons/year	Total GHG Emissions - Metric tons/yr CO_2e
PROPHTR001	0.1	1.10	9,626	8760	53.84	0.0010	0.0202	0.0001	0.0299	53.89
PROPHTR002	0.1	1.10	9,626	8760	53.84	0.0000	0.0000	0.0000	0.0000	53.84
PROPHTR003	0.1	1.10	9,626	8760	53.84	0.0000	0.0000	0.0000	0.0000	53.84
PROPHTR004	0.1	1.10	9,626	8760	53.84	0.0000	0.0000	0.0000	0.0000	53.84
PROPHTR005	0.15	1.65	14,440	8760	80.76	0.0014	0.0304	0.0001	0.0448	80.83
PROPHTR006	0.15	1.65	14,440	8760	80.76	0.0014	0.0304	0.0001	0.0448	80.83
TOTAL					376.87		0.08		0.12	377.07